

SLATE AND ITS USES

A HANDY BOOK OF INFORMATION
FOR ALL INTERESTED IN BUILDING



TD CAT 1906 Genuine Bangor slate (6.2)

ATHENAEUM OF PHILADELPHIA

Genuine Bangor Roofing Slate

The Roof
Needs no Repairs



Outlives
the Building

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*Genuine Bangor Slate Company, Incorporated,
Easton, Penna.*

Reference Guide of Roof Facts.

LC #320

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*A handy book of helpful FACTS
for all interested in building.*

Slate and its Uses

Genuine Bangor Slate Co.,
Incorporated

Easton, Pa., U. S. A.

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BY

GENUINE BANGOR SLATE COMPANY, INC.

EASTON, PENNSYLVANIA.

By way of Introduction—

We thank you for the opportunity of placing before you some interesting and valuable information about the uses of Genuine Bangor Slate, particularly for Roofing.

Since the life of your building depends upon your roof the subject deserves careful consideration. Naturally you will want to go into the matter in an intelligent manner, asking—

1st. What different kinds of Roofing Material are there?

2nd. Which is the most desirable, and why?

In this book we have endeavored to gather the necessary facts in convenient shape for your own judgment and conclusions.

Respectfully,

Genuine Bangor Slate Co. Inc.

The Roof over your Head.

No matter how well your house may be built if the roof leaks it causes constant repairs and expense—besides damage and annoyance. Without these repairs the structure would soon decay; a house with a poor roof is a failure.

This shows the importance of the proper selection of the roof. There is probably no subject connected with building with which the average man is less familiar than the faithful roof that shelters his family and his home from the elements.

Therefore you will no doubt welcome a little aid in deciding this question, as presented by the facts—*and facts only*—in the following pages.

There are many kinds of roofing material made

by man; such as tin, tile, corrugated iron, shingles, and any number of composition roofings (such as tar, asphalt, etc.); all manufactured through more or less elaborate processes. None of the manufacturers of these materials class them equal to slate, as shown on pages 37 and 38.

There is only one kind of roofing made by nature: that is slate.

That is the kind we produce and sell, Genuine Bangor Roofing Slate.

We take it from the quarry in large blocks, pure, just as nature put it there, split it to the proper thickness and trim it to the required sizes. But the substance of the rock is never changed. It is the same, well-known slate rock that never absorbs anything, and therefore cannot and does not decay.

The Roof over your Head (continued).

This is one of the many reasons why Genuine Bangor Slate makes such a perfect roof.

Its color is a rich, beautiful, dark, permanent blue; the handsome architectural effect of which cannot be reproduced in any artificial way.

What a Genuine Bangor Slate Roof will do.

This is quickly told. After it is once put on, it needs no repairs or attention whatever, and will last for centuries. It is the *only* roof of which these two claims hold good. Can you ask more of a roof?

What a Genuine Bangor Slate Roof won't do will show you in a much stronger light its many

great advantages. For, as a rule, you don't think of your roof until it gives trouble; on the same principle that you never think of your arm until it pains you. This also gives you an idea of the surprising number of defects against which to guard in the selection of a proper roof.

Here is what a Genuine Bangor Slate Roof won't do :

- It won't wear away.
- It won't rust.
- It won't decay.
- It won't crack.
- It won't tear.
- It won't chip.
- It won't warp.
- It won't disintegrate.
- It won't crumble away.

Genuine Bangor Slate compared with Tin Roofs (continued)
out in from ten to thirty years.

You need not take our word for it.

Take a look at the "American Artisan and Hardware Record," published at Chicago under date of August 11, 1906. On page 36 you will find the "Standard Specifications for Tin Roofs," adopted by the National Association of Master Sheet Metal Workers of the United States, in their second annual convention at Indianapolis, August 8th to 10th, 1906:

"All solder used on this roof shall be of the best grade and guaranteed half-and-half solder, (one-half tin and one-half lead), using nothing but rosin as a flux. Solder to be well sweated into all seams and joints. Surface to be *carefully* cleaned from all rosin before paint is applied. All tin shall be painted one coat on the under side and two coats on all exposed surfaces. The first coat shall be applied to the upper side immediately after laying with a hand brush, *well rubbed in*. The second coat

shall be applied in a similar manner in not less than two weeks after the first coat has been put on. All paint used shall be of the best metallic brown, mixed with pure linseed oil, litharge only as a drier. No patent drier or turpentine shall be used."

The joint Committee on tin plate at this Convention reported as follows on the quality of painting:

"We now come to the question of paint. How many sins against tin roofs have been committed by poor paint and poor application; too much stress cannot be laid on the quality of paint—how and when applied. A tin roof should be painted *at once*; we say "painted" not washed over with a wide brush at the end of a six foot pole. The paint should be of the best metallic brown or venetian red iron oxide, pure linseed oil, well rubbed in, Japan only as drier. No patent drier or turpentine should be allowed. Graphite or coal tar paints are *positively injurious* to tin and should never be used. Neither should cheap paints. Six months after laying the roof should have its *third* coat of paint, all painting to be done by the roofer."

No turpentine or patent dryer to be used!

Genuine Bangor Slate compared with Tin Roofs (*continued*)
Only a certain kind of paint to be used, and not
cheap paint at that! That puts you at the mercy
of the paint shop!

Under side to be painted! Why, how are
you going to re-paint it when necessary?

Three coats of paint well rubbed in by hand!
And a fourth coat in 6 months! Expensive,
isn't it?

Even then you have not done with the painter,
as shown by an article on "Standard Specifications
for Tin Roofing," see "Metal Worker," New York,
May 12, 1906.

"The roof should be painted again in a month or
six weeks period. If the roof is laid in the spring, it
should have its *third* coat in the fall, or if laid in the
fall, the next spring, after which it should be painted
every three years in the fall, as that is the best time
because winter months are the harder on a tin roof."

A Pittsburg Roofer writes as follows in the

next issue of the same paper:

"Now we pay \$18, \$20 to \$22 per box for Tin
Plate which we *have renewed in two years*."

From the same publication of May 12th,
1906:

"To sum up, the requisites of a good tin roof are:

1. Plate made on *good lasting base, heavily coated*;
one that will stand just as well as those of fifty years
ago.

2. Careful preparation in the shop, *using all the
care possible* before sending the plate to the roof.

3. *The best workmanship* in laying, *always
using cleats. Never nail* through the body of the
sheet. *Liberal use of solder, avoiding the use of too hot
irons.*"

If only one of these many complicated requisites is missed, it follows of necessity that you have a poor roof.

Here is an extract from the advertising pamphlet of a leading firm that sells roofing tin:

"But the tin must be *treated well*. It should be

Genuine Bangor Slate compared with Tin Roofs (continued)

painted as soon as laid. Red rosin-sized sheathing paper of extra heavy quality should be laid underneath it. It should be painted with metallic brown paint ground in pure linseed oil, or oxide of iron. *Don't use acids* in the soldering. Use Rosin. Paint the under side of the tin two coats before laying the roof."

Why use this extra heavy quality red rosin-sized sheathing paper?

This question is answered by an extract from another booklet published by another Tin Plate Producer:

"The paper serves to protect the tin from the *injurious vapors, gases, or fumes* that continually rise from the rooms below."

It is also answered by the above mentioned National Convention of Master Sheet Metal Workers, as follows:

"WATERPROOF PAPER ONLY UNDER TIN ROOFS.

More care should be used in the quality of paper

used under the tin. Where paper is used it should not be anything that will technically answer for paper, but a good water-proof one that will not absorb the dampness, but dry at once and *protect the tin from gases and dampness underneath.*"

Of course the above remarks about tin roofs apply with equal force to tin or terne sheets, so-called metal slates, tin shingles or all other variations of roofing with tin or terne sheets as basis.

All this trouble and constant expense caused by tin roofs is avoided by the use of a Genuine Bangor Slate Roof, which needs no paint or any other preservative.

It is well known that all metals, such as tin, copper, iron, steel, etc., are much more effected by the change in temperature than stone, such as slate. That is, heat expands metals and cold contracts them considerably. That is a natural law

Genuine Bangor Slate compared with Tin Roofs (continued)
beyond human control.

That's why the "Metal Worker" says that "small sheets are better than large ones for the simple reason that there is less expansion and contraction on each sheet, and consequently less breaking of the seams."

To make tin roofs weather-proof, the tin sheets must either be soldered together, made in one continuous sheet, or they are joined by means of seams or groove locks. Either is unable to withstand for any length of time the strain of this expansion and contraction. Thus the "Illustrated Carpenter and Builder Series of Technical Manuals" says :

"It is found that the places where soldered seams have been made, perish long before the rest of the metal is worn out."

An additional reason for the short life of these seams is that "the soldering irons, if too hot, the coat is injured and if too cold, the solder is not sweated into the seams as it should."*

No such "tin" troubles with the Genuine Bangor Slate Roof. Each piece of slate is a separate unit; it need not fit into any groove, lock or seam of any adjoining piece. Therefore contraction or expansion of the roof structure, or of the slate itself, cannot affect the weather-tight condition of the roof. There are no seams that can open, nor any other possibilities of a leak. Nor is there any chance of buckling in case the roof structure should sag or shrink on account of defective con-

* See "The Metal Worker," New York, July 14, 1906, page 44.

Genuine Bangor Slate compared with Tin Roofs (continued)
struction or materials.

A further disadvantage of tin and all metallic roofings is their conductivity of electricity. This adds greatly to the danger of thunder storms.

On the other hand, slate is a non-conductor of electricity; and is therefore extensively used for switch-boards. In an electric storm or in case of accidents with electric wires, life and property are certainly much safer under an absolutely insulating house covering, such as a Genuine Bangor Slate roof.

Genuine Bangor Slate compared with Steel or Corrugated Iron Roofing.

Some manufacturers have produced what they call a steel roofing. This is no more durable than the so-called tin roofings. For a tin or terne plate, as it is called by the trade, is nothing more than a sheet of steel or iron, *with a coating of tin or zinc to preserve it from rust and decay. And even that* coating must be further protected by paint to make it more durable. If this was not absolutely necessary, why would manufacturers thus increase the cost of these original steel plates?

This is admitted by the following extracts, for example, from the booklet of the "..... Steel Roofing Company":

"Painted roofings are all well painted both sides with a paint consisting of pure linseed oil, mixed with



A Genuine Bangor Slate Roof does not corrode, does not decay, does not wear away.



Numerous Government Institutions are roofed with Genuine Bangor Slate.

Genuine Bangor Slate compared with Steel or Corrugated Iron Roofing (continued).

ground iron ore, together with dryer necessary. Experience has proved this paint to be the best coating for metallic surfaces."

Here again you are at the mercy of the paint man to furnish you just the proper kind of paint.

From the same booklet :

"This *galvanized* material is highly recommended, especially where roofs, etc., are subject to the action, of gases, acids, and other deleterious fumes. *It can go for some years without paint, but eventually must be protected by a coating of paint.*"

Mr. James Christie, Consulting Engineer, in a paper read before the American Society for Testing Material at Atlantic City, June 21st to 23rd, 1906 says :

"It is now considered poor policy to use black metals, whether iron or steel, for roofing, even though painted. To some extent the same applies to galvanized metals." See "Metal Worker," New York, July 21, 1906.

Is it necessary to say more on this subject ?

No such "steel roof" troubles with a Genuine Bangor Slate Roof. Nor does it attract lightning like steel.

The protection against electric shocks or lightning afforded by non-conducting material, such as a Genuine Bangor Slate Roof, has been explained on page 14. It stands in marked contrast with the danger inherent to all metallic roofings in this respect.

Genuine Bangor Slate compared with Shingles.

Shingle roofs, like all wood, are necessarily



The rich architectural effect of a Genuine Bangor Slate Roof lend a substantial finish to the residence.

Genuine Bangor Slate compared with Shingles (continued).

short lived. Even frequent coatings of paint or stain cannot save them. They easily become water-soaked, which multiplies the weight of the roof five and ten-fold, a severe strain on the frame. In that condition the garret is always damp, and when in course of time the roof does dry out, the shingles are apt to fall off or split, and thus create leaks. No further evidence is needed on this point. Everybody knows that wood, when exposed to weather, will gradually split, warp or curl and rot.

The damp wood, with its many fissures, offers convenient lodging places for germs, insects, decaying vegetable matter, etc. They hasten the decay of the roof; absolutely destroy its looks, and are a danger to the sanitary conditions of the house, particularly where the roof water is collected in

cisterns for household use.

Furthermore, roofing that is damp more or less frequently, is bound to rot the roof timbers.

Not a word need be wasted about the danger from fire to a shingle roof.

All these drawbacks of wood shingles are overcome by covering your house with Genuine Bangor Slate.

**Genuine Bangor Slate compared with
Roofing Tile.**

Thinking of a tile roof? It is not so good as slate, very much heavier and much more expensive. Tile is "burned" from clay. It is therefore not only subject to all the imperfections that may creep



A Genuine Bangor Slate Roof needs no paint to preserve it, nor any paint for appearance.

Genuine Bangor Slate compared with Roofing Tile (cont.)
into a manufacturing process of this kind, but also to all the defects caused by impurities in the raw material. This possibility is admitted even by the tile manufacturers. The Roofing Tile Company, for example, says in its Catalog: "When tile is *well burned*, there is no question as to its desirability." But what guarantee is there that it is well burned? This cannot be told from the looks, but only through the expensive test of time.

Says another, the Roofing Tile Company, in an article too lengthy to quote in full:

"The ordinary clays of this country, for many reasons are very unfit for the purpose (of roofing tile) and are indeed a serious disappointment They are very *treacherous and unsafe to use*. In one part of the bed the clay may be quite pure, but perhaps only a few feet away, there may be considerable lime and other deleterious substances in it that are difficult to detect, and rarely are, until the clay has been made into tile and the

mischievous is already done. The slaking of the lime in the tile causes pieces to burst off. . . . When subjected to great heat, tile made from such ordinary, inferior clays are liable to excessive warpage and sometimes melt and run like thick molasses. Tile made from such clay are usually spongy, weak, easily broken by hail storms, etc.

One can readily understand that the more water a tile soaks up, the greater is the expansive force exerted when it freezes in the tile, and the sooner it will disintegrate, or go to pieces. . . . Cases are known where disintegrations have *actually occurred in less than two years*."

If this was not so, why should another, the Tile Company recommend in its Roofing specifications that:

"The roofer shall furnish a *two year* guarantee against weather?"

Two years is a pretty short time for a roof to behave itself, isn't it?

Frank Eugene Kidder, Consulting Engineer, in his "Architects' and Builders' Pocket Guide," page 656, says:



The substantial, pleasing effect of the Genuine Bangor Slate Roof harmonizes well with the graceful proportions of the building.

Genuine Bangor Slate compared with Roofing Tile (cont.)

"Unglazed tile imbibe one-seventh of their weight in water, and tend to rot the lath on which they are laid."

The moisture absorbed, particularly under the influence of sudden climatic changes, or the action of frost, must always result, sooner or later, in the disintegration of the roof.

So much for unglazed tile. Even glazed tile, though more expensive, offer no cure for these defects. On the contrary, the glazing is frequently intended to hide a poor quality of clay. Let the Tile Company explain this in their own words :

"Some tile are made of very coarse, inferior clay, the natural color of which is so homely that the tile would not be saleable, and the makers therefore resort to a "slip," or as it is sometimes erroneously called, a "semi-glaze," to cover this ugly product, the process being, before burning, to simply dip the tile into, or wash it with, a doped or chemically colored clay liquid mixture. Tile thus treated

are well calculated to deceive those who are not posted, but such artificial clay coloring soon fades, sometimes flakes off, and the roof is no longer the thing of beauty that it at first appeared to be."

Moreover, as the manufacturer says, "glazed tile are glazed only on the weather side." In other words the under side of these tile is left porous and unprotected; hence subject to the same absorption of dampness and rot, condemned in the above mentioned "Architects' and Builders' Pocket-Guide."

Roofing that becomes damp underneath, certainly rots the roof timbers, greatly shortening their life.

The excessive weight of tile also militates against its use for roofing. Tile weighs from eleven to twenty pounds per square foot of roof surface, requiring excessive expense in providing

Genuine Bangor Slate compared with Roofing Tile (cont.)
an extra strong roof frame. A slate roof weighs only six and one-half pounds per square foot of roof surface; or about one-half to one-third less than tile.

Genuine Bangor Roofing Slate, though cheaper than tile, equals it in beauty of appearance and surpasses it in all other good roofing qualities.

Genuine Bangor Slate compared with Composition Roofings.

When you look into the question of composition roofings, you will be confronted by a bewildering array of numerous brands from various manufacturers. Even at the first glance, their many

and highly exaggerated claims of superiority look confusing. A few moments' thought will at once reveal the many and great defects of this kind of roofing.

As the manufacturers admit in their public announcements, all these roofings contain either tar, asphalt, or pitch as basis, with felt, wool, burlap (sacking), etc., to give them body. The roofing is then admitted to be "weather-proofed," either by passing these prepared sheets through heavy rollers or by saturating them with a compound.

Of course you know that such stuff as burlap can't last. Even if weather-proofed, the effect of the compound is bound to wear off in time. The same holds good about felt, an animal matter. And what is more perishable than animal matter?



Genuine Bangor Roofing Slate is used on warehouses because it does not wear out. The building shown is a Government warehouse.

Genuine Bangor Slate Compared with Composition Roofings (continued).

It takes but little heat to make tar or pitch run. You can see this in summer on many a roof of this material, showing the streaks of running asphalt, or tar which in some cases drips on the sides of the house, on the street and passers-by. You know that asphalt dries and cracks from the effects of heat and water.

These facts are well summed up by an authority like "The Architect and Contractor of California," in its issue of May, 1905, as follows:

"To prevent the dampness from below and above Asphaltum has generally been used, sometimes mixed with Tar. There are two objections to these materials, namely: that they have to be applied hot, and that they become brittle and crack as soon as the oil contained in them dries out by evaporation. Waterproofing is sometimes attempted with Coal-Tar Pitch, which is the worth-

less residue that remains behind in the still, when Coal-Tar is distilled. *It cracks at freezing temperature, and runs in the summer sun.* In ordinary cold weather it forms no bond. Being an unstable chemical compound, its life is usually from one to three years. All compounds that are being offered under fancy names should be closely investigated and examined by architects before being specified, as most of them are based on either Asphaltum, Pitch or Tar. There is no need of a chemical examination in these cases, as the flame of a candle or even a match will heat such substances sufficiently to detect them by their pungent odor."

And what about fire? It is common knowledge that there is no better food for flames than asphalt, pitch, tar, rosin paper, etc. There is nothing more dangerous than the tendency to smoulder of wool, felt, burlap, etc. Not only will this roofing readily burn with a fierce heat, but the burning dripping tar, pitch or asphalt adds to the damage and danger of the fire.

No, as we said before, you need not take our

**Genuine Bangor Slate compared with Composition
Roofings (continued)**

word for it. Commercial courtesy forbids the use of specific names. But you can readily supply them when comparing the extracts quoted below with the pamphlets on Composition Roofing that can be had for the asking from the makers.

Says, probably the largest manufacturer of tar roofing, in the specifications supplied to the architects, the trades, and intending builders :

"Over the foregoing (roof sheathing) shall be laid a five-ply coal tar pitch, felt and slag or gravel roof, to be constructed as follows: The rosin sized sheathing paper or saturated felt to be used."

That this roof is defective is admitted by the fact that it has to be protected by spreading slag or gravel over it. What about the roof when the gravel wears off, or rubs off, under the influence of

the elements, etc? What, when it works out on a hot summer day while the pitch is soft?

These roofings are laid either in a continuous mass, such as gravel roofs, or in long sheets, such as the so-called ready-made roofings. Do they provide for the contraction and expansion caused by changes in temperature? As a result the buckling or tearing will damage this roofing and hasten its destruction, by exposing the interior plies to the elements.

Note how this roof is "built up," as shown in the same specifications:

1. First lay one thickness of rosin sized sheathing paper.
2. Then two full thicknesses of tar felt.
3. Then a uniform coating (*if you can get it!*) of pitch.

Genuine Bangor Slate compared with Composition Roofings (*continued*).

4. Then three full thicknesses of felt.
5. Then mop back again with pitch.
6. Then another uniform coating of pitch, into which,
7. While hot, embody slag or gravel.

Here are ten different layers of more or less perishable and inflammable material on the roof; ten chances for the layers to become loose under the influence of sun, rain, heat, cold, wind, and the vibrations of the building.

Moreover, the uniformity of the layers of pitch, which the specifications made so important, is soon disturbed by the tendency of the pitch to run; becoming denser towards the base and lighter toward the peak of the roof.

Some of the tar or asphalt generally runs into the eaves or spoutings, clogging and rotting them unless promptly removed. The anxiety about the action of the weather on the many layers scared one manufacturer into the printed statement: "It is a good policy not to *cut or slit* the roofing more than is absolutely necessary."

Here is another illustration taken from the literature of Ready Made Roofing :

"A very strong wool felt—the foundation.

A solid but flexible body of asphalt cement composition.

Strong burlap embodied into the upper surface of cement. The heavy elastic finish of paint." (*Here is the paint trouble again!*)

Here is another diagram of construction of an asbestos roofing :

1. Pure asbestos felt, weather surfaced.

Genuine Bangor Slate compared with Composition
Roofings (*continued*).

2. Layer of acid and water-proof asphalt cement.
3. Pure asbestos saturated felt.
4. Layer of acid and water-proof asphalt cement.
5. Heavy canvas burlap saturated.
6. Layer of acid and water-proof asphalt cement.
7. Pure asbestos felt backing.

Here are seven chances for layers to come apart.

The short life of this roofing is proved by the manufacturer's statement that it is covered on both sides with asbestos *felt*. The name of *felt* is given to any substance composed of threads or fibres,

made into a sheet by *simply forcing them together under pressure*. This applies to any kind of felt, such as that used for hats, padding, boots, etc.

Unless a sheet of fibrous material is *woven* together, instead of simply pressed, there are no meshes (no warp and woof) to hold the material firmly together. That is why this manufacturer says: "A selvedged edge of burlap prevents *pulling away from nail heads*."

In other words, if it were not for the burlap, there would not be enough solid substance in this roofing to hold it together around the nail.

As soon as the weather gets in its work on this roofing, the asbestos sheets will, therefore, disintegrate, and gradually be washed away. It is true, as the manufacturer says, the asbestos does not rot or decay. The asbestos fibres remain

Genuine Bangor Slate compared with Composition Roofings (continued)

unchanged as asbestos; but the asbestos *sheet* is gone—and that is the roofing. In evidence of this it is only necessary to point out that in spite of the great demand, no manufacturer has as yet been able to produce an asbestos covering for steam pipes, boilers, etc., that can be used out-doors without a protecting jacket of some kind.

Here is even a better proof. The manufacturer of this same asbestos roofing admits its weakness by printing among his own testimonials, the following letter from Washington, D. C. :

"I have your asbestos roof on my dwelling house above number and street. It has been on about five years. I want your preparation of pitch to cover it."

The word "asbestos" holds out the alluring prospect of obtaining a fire-proof roof. But such

is by no means the case. As you have seen above, it does not take long for the thin asbestos covering to disintegrate, or warp, particularly under the influence of heat. Thus the interior parts are exposed, all of which are highly inflammable. Another simple test is to apply a match to a sample of this roofing, which will ignite quite readily.

In fact experiments with samples of all this class of roofing justify the bold statement that it is all readily inflammable. Try it yourself.

Apply a match to the edges of the samples.

Yet every manufacturer of these roofings dwell on their fire-resisting capacity. Nevertheless, the manufacturers of roofing acknowledge this defect as follows, in their advertising literature:

"A burning brand of cinder falling on it will burn itself out without igniting the roofing. This can be easily demonstrated by placing a hot coal on either side of the

Genuine Bangor Slate compared with Composition Roofings (continued).

roofing. Around the edge of the coal the roofing will *burn slightly*, but as the coal becomes cool, the material ceases at once to burn and the fire does not spread."

That is what one piece of coal will do to this roofing, according to the manufacturer's own admissions. Now, what about a shower of flying, burning embers from a fire nearby, that doesn't give the roof a chance to cool off?

The pamphlet says: "Its basis of compact, closely woven wool felt, specially prepared, does not absorb nor *burn easily*." Note here that there is no such thing as "woven felt."

Because of the fire feeding tendency of these roofings, there is now in preparation a building ordinance to be introduced in New York City, providing that "No roof covering except slate, tile

and metal shall be allowed in greater New York." (See the "Metal Worker," New York, July 14, 1906.)

All these manufacturers speak about the long life of their roofings, which they admit must be re-painted or "re-coated" more or less frequently.

The following are literal extracts from their advertising literature:

"It is unnecessary to paint roofing when it is first laid, and *not until eighteen months or two years after* need this be done.

Here is a paint bill for you to pay every two years. The manufacturers tells you so right at the start.

" roofing does not require paint when laid, but where a roof is exposed to exceptional conditions, we recommend a coat of paint at the end of eighteen months."

"*Be sure and re-coat the roof every two or three years.*" (The italics are *not ours!*)

**Genuine Bangor Slate compared with Composition
Roofings (continued).**

The strongest proof of this fact is that all these manufacturers in the same pamphlets recommend the use of a special roofing paint which they *find it necessary and profitable* to manufacture.

In spite of assertions of longevity, only a few of these manufacturers are willing to guarantee their roofs for a span of ten years; none over that. What does that guarantee mean? A new roof for the old one that gives trouble? No indeed! They simply patch the numerous leaks with a new coating of cement or some other mixture which they make it a business to "recommend" and sell. Admitting that they make good their guarantee, who must suffer from the annoyance, you or the manufacturer?

Another fallacy advanced in favor of these roofings as compared with slate, is their lightness; requiring a lighter, hence less expensive roof frame. This is really an advantage for slate, which weighs only six and one-half pounds to the square foot of roof surface. Any roof structure unable to bear this weight is so flimsy that it is not safe to live under. Thus a slate roof insures you a substantial roof structure.

The economy of a Genuine Bangor Slate Roof as compared with these composition and other roofings, is evidenced in the strongest light when a building is torn down. In such a case the slate on it is just as good as new and can be used over. But in buildings with any of these other roofings, the latter are absolutely worthless.



No matter how large the buildings, we can promptly furnish Genuine Bangor Slate to cover them.



Genuine Bangor Roofing Slate is extensively used on factories, being unaffected by gases, fumes, acids, alkalies, weather and sparks.



A Genuine Bangor Slate Roof is unique—it is not subject to depreciation or expenditures for maintenance.



No roof is more beautiful than a Genuine Bangor Slate Roof. It is "lasting beauty" in the fullest sense of the word.

Slate Roofs are considered the Standard even by the Manufacturers of other Roofings

This is even recognized by the manufacturers of other roofings, as shown by their advertisements. One firm says of their roofing material that it 'wears like slate.' Another, more truthful, says their roofing "wears longer than any other roofing except slate." Another manufacturer of tin shingles alluringly calls them "metal slate."

It is also proved by their own printed admissions or omissions. It goes without saying that these manufacturers have studied the question of roofing very thoroughly. Their treatment of slate is, therefore, an exceedingly high recommendation.

Here, for example, is an advertising pamphlet

on Coal Tar Roofs. It attempts to show the superiority of this article over asphalt roofs, metal roofs, and ready-made roofings, but truthfully cannot and does not say anything against slate.

Here is a booklet about Roofing, which admits the neat appearance of a slate roof, as follows :

" roofing is a dark gray in color and presents a smooth, neat surface, *looking not unlike slate when laid.*"

From the same booklet :

" Roofing will last longer than tin, iron, shingles or any other *prepared* roofing."

Why didn't they mention slate in this connection ?

Here is a booklet on Roofing, which compares its product with galvanized iron and tin roofs, tar and asphalt roofs ; also "some other roofings" which have burlap or canvas as a base.

**Slate Roofs are considered the Standard even by the
Manufacturers of other Roofings (continued).**

Not a word about or against slate !

Here is a booklet on Roofing :

" You must not expect to get the same amount of service out of gravel surface, tar paper or metal roofs, as you would from Roofing."

Not a word about slate ! The "Illustrated Carpenter and Builder Series of Technical Manuals" thus conclude a comparison of the different kinds of roofing material :

" Tile or slate is far more preferable to metal or wood for roofing when considered from a sanitary standpoint. This is especially the case in the country and small towns, where cisterns are largely depended upon for water supply. The clean, pure slate forms a striking contrast to the rust, paint or wood rot of other roofs, when the roof is used for the purpose of collecting pure rain or snow water to be stored in cisterns for domestic use, or even for farm-yard or stable use.

" The value of roofing material is determined by a

variety of considerations, among which the most important are, first cost, durability, appearance, resistance to fire and consequent influence on the cost of insurance and the expense of maintenance and repairs. *We think it is safe to say that nothing beats slate.*"

" Good slate properly put on requires no attention of this kind, and it is seldom the case that a slate roof is injured or damaged by storm, unless the structure upon which it is placed is not sufficiently strong and secure. A slate roof when properly put on is practically permanent, and requires comparatively no repairs or attention."

**Genuine Bangor Slate Roofs on Buildings
Everywhere.**

The numerous, vital, and unequalled advantages of a Genuine Bangor Slate roof explain its ever growing popularity. You will find it on buildings of all kinds all over the country. You will get some slight idea of its general use by the buildings



Hospitals avoid the noise and confusion of frequent roof repairs by means of a
Genuine Bangor Slate Roof.



People of moderate means find a Genuine Bangor Slate Roof the most economical, while at the same time lending an air of substantial dignity to their homes.



Where a Genuine Bangor Slate Roof protects the live stock and crops, the farmer is not constantly taxed with trouble and expense of roof repairs.



Genuine Bangor Slate Roofs are found on churches all over the country, from the humble chapel to the imposing cathedral.

Genuine Bangor Slate Roofs on Buildings Everywhere*(continued).*

illustrated in this pamphlet. You will find it on prominent public structures, such as government buildings, churches, court houses, school houses, and other public institutions. You will find it on "utility" buildings, such as mills, factories, foundries, round-houses, warehouses, stables, barns, etc. You will find it on the humble cottages of the laborer, as well as on the palatial residences of the well-to-do.

Its long and useful record of satisfactory and economical service for generations past is the strongest recommendation why you should have it on your building.

You save money, trouble and annoyance by

putting a Genuine Bangor Slate Roof on that *new* building you are going to erect.

You save money, trouble, annoyance, and prolong the life of your old building by roofing it with our Genuine Bangor Slate, instead of constantly paying repair bills for the old tin, composition, or shingle roof.

The Cost of a Genuine Bangor Slate Roof.

You would be surprised to see how little money it takes to put a Genuine Bangor Slate Roof on your building, no matter where located. If you will write us, we shall be very glad to give you full information on this subject, based upon your local conditions as to freight, labor, etc. And it is well worth your while to go into this matter thoroughly,

The Cost of a Genuine Bangor Slate Roof (*continued*).
for the roof is *the* vital part of your building.

We have said before that slate is the cheapest of all roofings. "Cheap" means inexpensive. Now the aforementioned kinds of artificial roofing certainly cannot be called *inexpensive* if they cost you their original price many, many times over, on account of the constant bills for painting, re-painting or coating and re-coating, and other repairs during the entire life of the building. In other words, the cost of a roof is not only the amount you have to pay for the material and labor of putting it on, but to these must be added the additional and continuous expense of keeping the roof in repair as long as the building stands.

A Genuine Bangor Slate Roof requires no such additional and continuous expense.

Here is the opinion of a large firm handling building materials in general and all kinds of roofing material. They have no reason, therefore, to favor slate. Yet in their catalog they say:

"It will be readily seen that a slate roof is not only the most durable, but when the original cost and average life are taken into consideration, it is three and a half times cheaper than tin, four and a half times cheaper than shingles, six and a half times cheaper than iron, and twelve times cheaper than copper.

How to Obtain a Genuine Bangor Slate Roof.

To make sure that you will get a Genuine Bangor Slate Roof, tell your architect, contractor, carpenter, or roofer to specify and order "Genuine Bangor Slate from the manufacturer,

How to Obtain a Genuine Bangor Slate Roof (*continued*).
the *Genuine Bangor Slate Company, Easton, Pa.*" Write us, or tell them to write us. We will cheerfully give any information in our power to obtain a good roof for you.*

We are the largest producers of roofing slate in this country. We can make prompt shipments, owing to our extensive stocks and convenient private rail road sidings.

*For your convenience use the attached Reply Blank.

Like all good materials well established in the trade by long usage, Genuine Bangor Roofing Slate stands pre-eminent. We insure you against substitution, however, by furnishing with each shipment, our warranty, with the Corporate Seal attached and signed by the Secretary of the Company. A facsimile is shown on the back cover of this book.

Upon request we also place on the slate our trade mark, as shown on page 1.



Being spark-proof and non-combustible, a Genuine Bangor Slate Roof is a safe protection on buildings located along railroad tracks.



The edifices held in highest esteem are undoubtedly the churches. The roof held in highest esteem for them is undoubtedly the Genuine Bangor Slate Roof.



Genuine Bangor Slate is the roof for palaces as well as humble homes. Its rich appearance lends tone; its durability, permanency and value.



The business-like wisdom of the American farmer is evidenced by the numerous
Genuine Bangor Slate Roofs found on farm buildings all over the country.



The expensive machinery of power plants is protected by Genuine Bangor
Slate Roofs. Unlike the machinery the roof neither wears out nor needs repairs



Genuine Bangor Slate lends itself well to the majestic effect of a dome roof.



Genuine Bangor Slate permits all variations of roofing, as shown here, no matter how much the roof is "cut up."



Isolated establishments find a Genuine Bangor Slate Roof particularly desirable, because it greatly lessens the danger of fire.



The most conspicuous part of houses in a landscape is the roof. The most conspicuous roof in all points of merit is the Genuine Bangor Slate Roof.



Dwellers under a Genuine Bangor Slate Roof are usually happy: their temper
is not tried by frequent roof troubles and repair bills.



Genuine Bangor Slate on a building protects the contents and interior finish
from damage by leaks or repairs.

The Varied Uses of Slate.

Slate is used for a variety of other purposes, where its non-combustability, durability, cleanliness and absolute non-absorption make it invaluable. The following is a partial list :

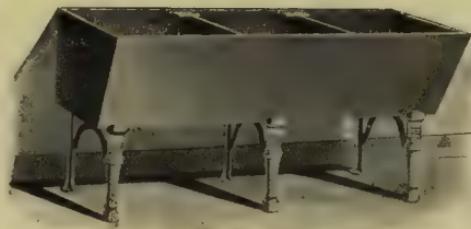
<i>Interior Finish of</i>	<i>Sanitary Slate</i>	<i>Industrial</i>	<i>Household</i>
<i>Buildings</i>			
Steps	Urinals	Vats and Tanks of all sorts for	Refrigerator Shelves
Risers	Shower Stalls	Dye Works	Cupboard Shelves
Platforms	Bath-room Partitions	Chemical Works	Pantry Shelves
Floor Tile	Morgue Slabs	Dairies	Shelving of all sorts
Wainscoting	Operating Tables	Bottling Establishments	Pastry Boards
Vestibule Panels	Germ-proof Flooring	Canneries	Table Tops
Base	Mausoleums	Soda Fountains	Kitchen Sinks
Dowels	Grave Vaults	Slaughter-houses	Wash Tubs
Lintels	Grave Covers	Bakeries	Sink Tops
Window Sills	Grave Markers	Florists	Lavatory Tops
Coping	Cistern Covers	Tanneries	
Tiling		Feed and Water Troughs	
Mantels		Electric Switch Boards	<i>Educational</i>
Fire Boards		Oyster Troughs	Blackboards
		Fish Tanks	Bulletin Boards
		Aquarium Bottoms, etc., etc.	

Other Uses of Slate, The only Sanitary Stone.

The same qualities of durability and non-absorption that make slate so valuable *on* the house, make it desirable and serviceable *in* the house for a great variety of uses. For these purposes the slate rock is worked at the quarry into slabs, greatly varying in dimensions, according to requirements. No other material, be it stone, wood or metal, is so easy to keep clean. Impurities lodged on slate are quickly and easily washed off by the simple application of water.

Slate in the Household.

For these reasons slate kitchen sinks and slate wash tubs are favorites with the housewife. The



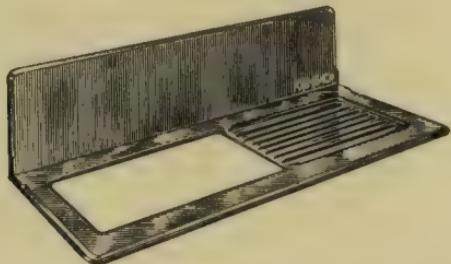
Sanitary three-compartment slate wash-tub.

illustration of the sanitary kitchen models shows only two of the types in use. We make a great many varieties to order, with any number of compartments from one to six. The standard type of slate tub consists of either two or three compartments, as shown. They are also made with high backs to protect the wall from splashing water.

Besides sinks made entirely from slate, we

Slate in the Household (continued).

furnish slate sink tops in great variety for sinks built into walls, kitchen closets, etc. The popularity of these sink tops is growing every day. No



A slate sink top will make your kitchen more sanitary.

other spot in the household collects as many impurities or offensive odors as the sink. It is therefore highly important that it be made of

strictly sanitary material. Where iron, porcelain, or other kinds of sinks are already installed, you can have them protected from infection by putting on a slate sink top.

A bare cast iron sink is of course subject to destruction by rust; but even an enamelled cast iron sink is no better. Hot water flowing into the sink expands the iron body much more than the enamel; causing the latter to crack. These cracks in course of time become very numerous. Not only do they allow the water to enter, thus rusting the iron; but they offer breeding places for dangerous disease germs and unpleasant odors, which no amount of hard cleaning can drive out.

You needn't take our word for it. The largest manufacturers of enamel iron sinks and tubs speak



Germ-proof slate kitchen sink with drip-board.

Slate in the Household (continued).

in their own advertising literature about "the delicate surface of your bath tub or other enameled

ware." "Acids will harm the material of which the sink is composed." Do not forget here that acid liquids are by no means scarce in the kitchen. The most common of them is vinegar. The validity of these objections is further upheld by the "guarantee" of the same manufacturer. It guarantees these fixtures against crazing or cracking for *only two years*. Do you want to renew them that often?

Nor are expensive porcelain sinks an improvement. They, too, have a coating of enamel which is of a different substance from the body. The expansion and contraction, therefore, works in the same manner as in an iron sink, to the detriment of sanitation in the household. Despite of what the manufacturers of this class of goods may say, science has well established the fact that there are no two substances which contract or expand alike.

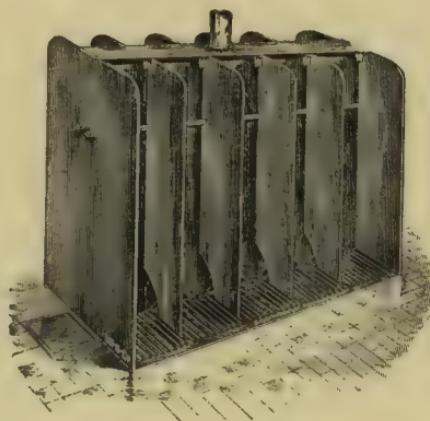
Slate in the Household (continued).

This factor, therefore, always militates against any article consisting of two different substances baked together, such as tile or porcelain, and the glazing or enamel used to make them non-porous, at least for a short time at the start.

Slate shelves or slate table tops are greatly in demand in the kitchen, in the pantry, in the cellar (to store preserves and other eatables); in fact wherever cleanliness is the prime consideration.

Slate for Sanitary Plumbing.

Sanitary engineers specify slate slabs for all kinds of sanitary work. No stronger evidence of this need be mentioned than the fact that the experts of the United States Government specify slate slabs for urinals, shower stalls, closet stalls, bath



Type of sanitary slate urinal used in schools, railroad stations, barracks, and other public toilet rooms.

room partitions, etc., in all army and navy posts, at the Military Academy at West Point, at the Naval

Slate for Sanitary Purposes (continued).

Academy at Annapolis, at Military stations throughout the country, as far north as Alaska; also on war vessels. Wherever Uncle Sam houses the defenders of the nation, he guarantees their sanitary surroundings by providing slate in the plumbing of the buildings and the grounds. This is specified in a printed pamphlet issued by the United States Government under the title "General Specifications for plumbing Buildings, prepared in the office of the Quartermaster-General, U. S. Army, October 1904, corrected March 2, 1905."

The same general use of slate is made by sanitary engineers, architects, etc., for school buildings factories, railroad stations, assembly halls, hotels, public institutions, municipal public toilets, etc. Quite recently, for example, we furnished a large

number of slate urinals for the elevated railroads of New York City. Slate urinals are also in use at all Elevated and Subway railroad stations, ferry houses and steamship piers in Greater New York.

One of the largest manufacturers of plumbing fixtures says in "A Few Points on Sanitation for Schools, Institutions, Factories, etc.: 'We recommend slate partitions as being more sanitary than wood and fully as good, though cheaper than iron.'"

The same pamphlet accompanies the illustration of a slate urinal with the following text: "This plate shows urinals complete as installed in all the schools of St. Louis and many other cities. *Will last as long as building.*" Bear in mind, please, that these words were said by a firm not interested in slate except as a material which, in the light of modern sanitation, they *must* use to pro-



Slate Blackboards do not absorb water or impurities like artificial blackboards,
hence last as long as the building.

Slate for Sanitary Purposes (continued).

duce good results and to satisfy sanitary experts.

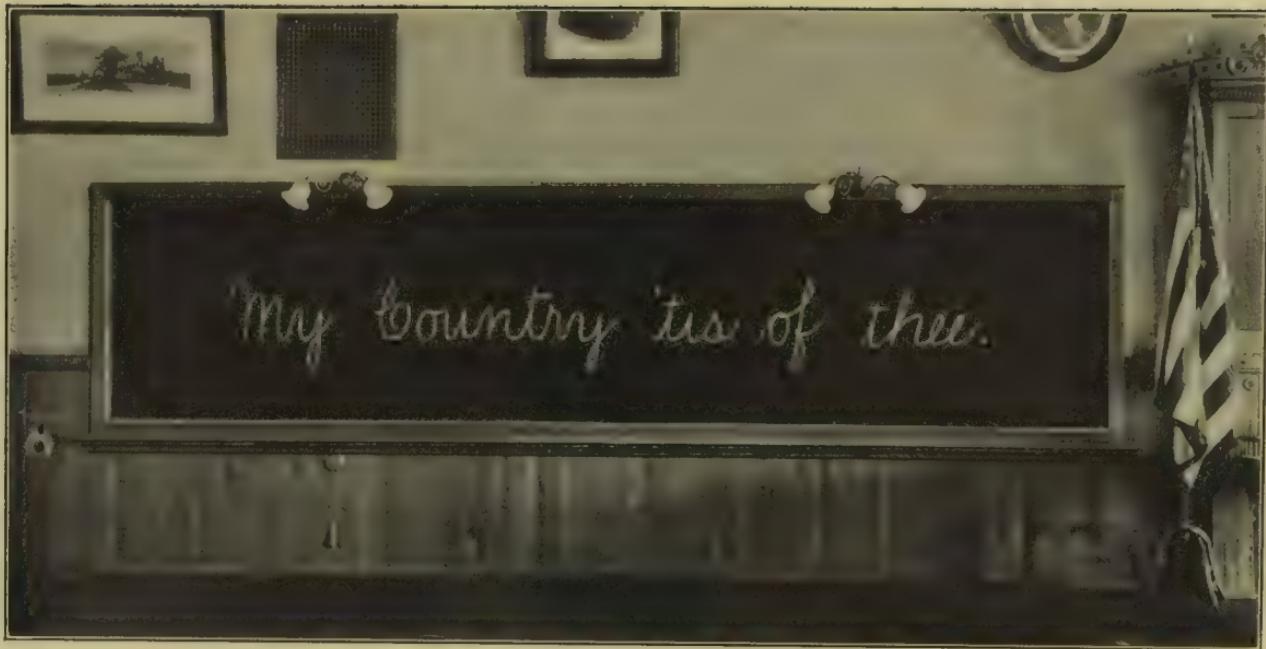
Slate Blackboards.

Architects and educators all agree that natural slate blackboards are unsurpassed in the school room. The reasons are; cleanliness, durability, smooth writing surface, uniform lasting dark color and low cost. Our blackboards are found in thousands of school, college and university buildings, from the Atlantic to the Pacific, from Mexico to the northern regions of Canada. These words are no oratorical flourish : they are hard, cold facts. It is well-known that in wooden or composition blackboards, the black soon wears into gray. This becomes lighter and lighter until finally faded and spotted, forming no contrast to the chalk mark,

it becomes a great strain on the eyes of the teachers and pupils. The expense of re-blacking these boards at frequent intervals is entirely obviated by the use of our Genuine Bangor Slate Blackboards. Moreover, composition blackboards will disintegrate. Wooden blackboards will crack, warp, and wear out. But it is hardly necessary to say that slate blackboards will outlast the building, being the same substance as roofing slate.

The so-called "composition" blackboards consist largely of pasteboards, with a very thin black surface coating. The latter is usually so flimsy that a good scratch with a finger nail will reveal underneath the gray or white pasteboard back. When the surface is washed these sheets naturally absorb the water, to say nothing of germs and impurities.

All the makers of these imitation "blackboards"



Our Blackboards are found in school buildings from the Atlantic to the Pacific.

Slate Blackboards (continued).

admit that slate is a durable blackboard. They also practically admit that their boards are not durable; for they offer in all their advertising literature a "liquid slating" to re-coat their imitation blackboards.

If you have a voice on the School Board you can render your community, its tax-payers, pupils and teachers no better service than by insisting upon natural Genuine Bangor Slate blackboards in the classrooms. We furnish them to fit any space.

Blackboards in small sizes are very convenient as bulletin boards in homes, business offices, hotel and railroad offices, warehouses, stores, club and assembly rooms, railroad stations, restaurants, etc.

Slate for Cemetery Purposes.

The absolute damp-proof qualities of slate have opened for it a wide field for cemetery purposes, such as grave markers, morgue slabs, grave covers, mausoleum floors and partitions, and burial boxes.



Slate Coffin Vault, better and cheaper than brick or cement lining.

Particularly the latter are extensively used under the name of "grave vaults." They preserve the

Slate for Cemetery Purposes (continued).

casket better than a brick or cement lining in the grave, and are considerably less expensive.

Slate for Interior Finish of Buildings.

Slate is also extensively specified in the interior finish of buildings for wainscoting, panels, base-mouldings, steps, risers, stair-landings, platforms, window-sills, door lintels, dowels, fireboards, etc.

A small Slate Base keeps your porch posts from rotting at the bottom, without splitting the posts like iron supports.

No other material being absolutely non-absorbent, the use of slate is practically compulsory for floor tiling in bacteriological laboratories, slaughter houses, operating rooms, sanitary dairy stables, etc. For the same reason it is used for partitions, floors, shelves, tanks or troughs in all establish-



Germ-proof slate stairway for hospitals, schools, factories, fire-proof buildings, etc.

ments where cleanliness is a necessity, such as bakeries, private and public kitchens, canning

Slate for Interior Finish of Buildings (continued).

houses, green houses, food factories, bottling establishments, etc. Slate is used for aquariums, soda fountains, mess tables, mixing troughs, refrigerator shelves, etc.

Owners and breeders of live stock can greatly add to the healthful conditions of their animals by using slate water troughs.

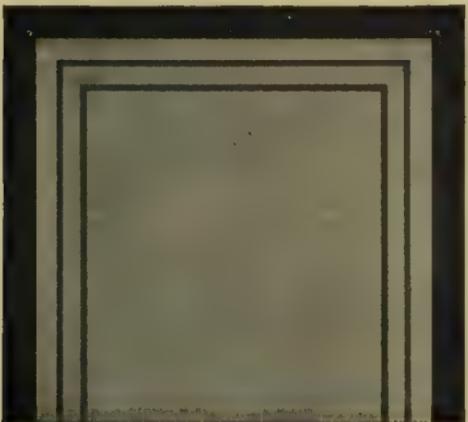
Slate for Ornamental Purposes.

Slate also admits of pretty ornamental effects. It is possible to imitate any desired pattern of marble or tile so perfectly that even an expert cannot tell the difference except upon close examination. Slate thus "marbleized" is widely used as a cheap but effective imitation of onyx or marble table tops, mantels, fire boards, etc.



Marbleized slate mantel—an effective imitation of marble.

The illustration shown gives but a slight idea of the many variations of designs and patterns we can furnish.



Marbleized Slate "Imitation Tile"—no joints to fall out of alignment—no crevices for dirt and germs.

Slate for Ornamental Purposes (continued).

A "tile finish" slate fire board, apart from

being cheaper and identical in appearance with a fire place built of tile, offers the additional advantages that the "tiles" can neither fall apart nor come out of alignment. Unlike real tile, there are no crevices in which dirt or germs can lodge.

Further and New Uses of Slate.

The above does not by any means exhaust the possibilities of slate, the one absolutely non-absorbent stone that can be worked into convenient slabs of any size and that is much more durable than marble or granite, while at the same time less expensive. Slate being a non-conductor is used extensively for switch boards. It is used for billiard table beds, etc. New uses are found for it every day for industrial, sanitary and other purposes.

If you have any use for strong durable abso-

Further and New Uses of Slate (continued).

lutely clean and sanitary slabs for any purpose whatever, no doubt you can use slate to advantage. Let us know about it. We shall be glad to go into the matter in detail.

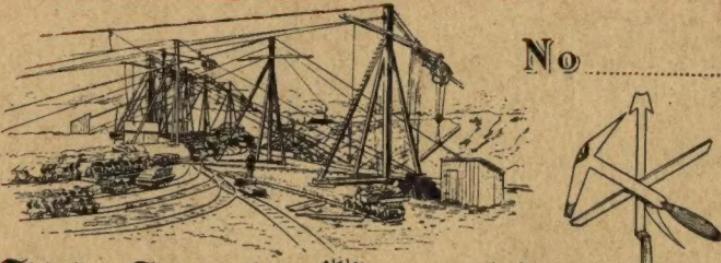
Remember, please, that while we are the largest producers of slate in this country and often ship entire train loads of roofing or structural slate, no inquiry is too unimportant for us for proper consideration. No order is too small to receive our prompt and careful attention.

Other Uses of Slate:

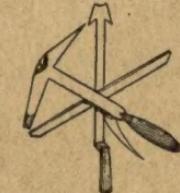
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THE HOBSON PRINTING CO.
PRINTERS : ENGRAVERS : BINDERS
EASTON, PENNA.

WARRANTY



No.



It is Herby Warranted
that the slate loaded in car
consigned to

No.

WARRANTY

are Genuine Bangor Slate
shipped by

GENUINE BANGOR SLATE CO.

INCORPORATED.

Easton, Pa. 19 Secretary